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BANH, DAVID H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,299	Applicant(s) BUECHNER, DETLEF ALFONS	
	Examiner DAVID BANH	Art Unit 2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 15, 2010 has been entered.

Response to Arguments

2. Applicant's arguments filed on March 15, 2010 have been fully considered but they are not persuasive. Applicant argues that the combination of Agne and Okada as applied to claim 1 does not teach a pulse train in the form of output signals, and a circuit configured to generate said output signals that are parameterized with respect to a number of pulses per rotation and an assignment to one of the at least two virtual leading axles and that the pulse train includes a plurality of correlated pulse trains wherein each set of correlated pulse trains is configured to indicate a direction of movement, increase reliability and define a zero point. Applicant goes on to say that a rejection under 35 U.S.C. 103 would not read on the invention if the structure is not taught by at least one reference in the combination.

Agne teaches in the rejection for claim 1, a circuit configured to generate output signals to control another assembly, **AR5**. The signals produced by the circuit can be considered a pulse train and this pulse train is necessarily constituted by a correlated

set of pulse trains, being, for example, the first 5 pulses, the next 5 pulses, etc. The correlated pulse trains indicate position data of the drive and thus indicate movement over time, which increases reliability. A zero point is defined by the pulse train, particularly being the lack of a pulse. Okada teaches a position detector that outputs a signal in proportion to rotational speed, and thus is parameterized with respect to a number of pulses per rotation.

All of the structural elements of claim 1 are taught. The pulse train and nature of the pulse train is not a structural element and thus the circuit taught need only be capable of producing said pulses. Production of the pulses by a circuit is taught by Agne as described and the nature of the pulses is further defined by the modification by Okada. Motivation to combine the teaching of Okada is given in the rejection presented below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-15, 17-22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agne (US Patent 6,456,222) in view of Okada (US 2003/0099176).

For claims 1 and 24: Agne teaches a drive device (see the Figure, the entire Figure is a drive device, and column 2, lines 35 and 66) comprising at least two virtual axles **G1, G2** (see column 2, lines 40-45, sensors **G1, G2** are virtual axles in that they

sense the position of the motor **M1**) configured to preset the desired angular position of a drive (column 3, lines 1-10, the sensor detects the position of the motor and sends the position to a drive regulator, which can control the drive position) driven by a separate motor **M1** (in column 2, lines 34-40, the invention is disclosed as "a drive comprising at least one motor **M1 to M5**”), wherein the at least two virtual leading axles **G1, G2** are connected to a circuit **GU2** (column 2, lines 46-49, the signal processor is a circuit) which is configured to convert the data for the angular position of a leading axle position into a pulse train in the form of output signals (see column 2, lines 40-60, the circuit **GU2** converts the position data from **G1, G2** about the motor **M1** into sensor compatible pulsed signals), the circuit **GU2** being assigned to at least one of the virtual leading axles (see column 2, lines 55-60, circuit **GU2** receives the signals of sensors **G1, G2** and thus is assigned to both) and the pulse train includes a set of correlated pulse trains (see column 2, lines 40-60, the position value of the motor **M1** is converted into sensor-compatible pulsed signals in converter **GU2**, a pulsed signals can be considered a set of pulse trains, sequentially speaking, the first three pulses are one pulse train, the next three pulses are a second pulse train, for example), wherein the correlated pulse trains are configured to indicate a direction of movement (see column 3, lines 1-3, the pulses indicate the position data of the drive, and thus over time indicate movement), increase reliability (see column 2, lines 55-60, the pulse trains are used to better control the drive by communication to a drive regulator) and indicate a zero point (given a pulse train, the lack of a pulse is implied zero point).

Agne does not teach that the circuit is configured to be parameterized with regard to a number of pulses per rotation. However, Okada teaches a position detector **11** for a motor **2** that outputs a frequency signal that is in proportion to rotation speed (see paragraph 330). This means that the signal is parameterized with respect to the number of pulses per rotation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to parameterize the outputted signal of Agne with regard to a number of pulses per rotation as taught by Okada, so that other devices can interpret the parameterized signal and so that a human observer can roughly determine the position and speed of the motor by the signal alone.

Agne teaches controlling the subassembly **AR5** by the apparatus taught above, wherein the subassembly comprises a sensor and controls the drive motor and drive (see column 3, lines 8-10 and 19-20).

For claim 2: The combination of Agne and Okada teaches the drive device of claim 1 and Agne further teaches that the pulse train (see column 2, lines 45-50, a signal converter generates a pulse train, since a converted signal is a pulse train) is supplied to a drive **M5** of a subassembly **M5, LE5, AR5** (see column 2, lines 55-60, the signal converter sends the signal to drive regulator **AR5**).

For claim 3: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches that the circuit comprises a number of subcircuits that are able to generate a number of pulse trains at a number of outputs (the circuit can be its own subcircuit where number for the number of subcircuits, pulse trains and outputs can be one).

For claim 4: The combination of Agne and Okada teaches the drive device of claim 3 and Okada teaches that the signal produced by the circuit or subcircuit **GU2** is adjustable with regard to additional parameters that relate to the shape of the output signal (in Okada, Fig. 27A, and paragraph 330, it is seen that the circuit is parameterized with respect to the n/2π and Fig. 27A sows the shape of the output signal, which is as such because the signal is based on a number of pulses per rotation).

For claim 5: The combination of Agne and Okada teaches the drive device of claim 3 and Agne teaches that the circuit **GU2** is an emulator circuit (see Agne, column 3, lines 10-25, the circuit is used to connect drives from different manufacturers together and the system is used to bridge the drive bus interfaces).

For claim 6: The combination of Agne and Okada teaches the drive device of claim 3 and Agne teaches that the input of the circuit **GU2** receives the leading axle position from a drive control unit **G1, G2** (the sensors help control the drive and input their data into the circuit as seen in the Figure and previously described).

For claim 7: The combination of Agne and Okada teaches the drive device of claim 1 wherein Agne teaches that the circuit **GU2** is connected as a client to a network (the system comprising **GU1, GU2** and additional wires **AB1-AB4** and **AR1-AR5** and computer **L**), the circuit conveys the leading axle position (**GU2** to **AR5**) and receives its angular position at its input from sensors **G1, G2**.

For claim 8: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches a drive control unit (see the Figure, the drive control is

essentially of the Figure, as the apparatus is composed to control drive), which presets the leading axle position (the Figure comprises motors and drives, the drives must have an initial position), and the drive control unit comprises a circuit (see the Figure, the drive control unit comprises a plurality of circuits, being all of the wires, and also circuits **GU1, GU2**).

For claim 9: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches that the at least one circuit **GU2** comprises at least first **GU1** and second circuits **GU2** circuits that are provided for converting the chronologically changing datum for the regular position of a leading axle position into a pulse train of output signals (see Abstract, lines 7-10, the at least one circuit is **GU1, GU2** having at least first circuit **GU1** and second circuits **GU2**).

For claim 10: The combination of Agne and Okada teaches the drive device of claim 9 and Agne further teaches a drive control unit (see the Figure, the entire invention is a drive control unit) that presets the leading axle position (the Figure includes motors and drives and the drives must have an initial position) has a first circuit **GU1** which converts the changing data of the axle position into a pulse train with a fixed definite number of pulses per rotation (in Agne, virtual axles being sensors **G1, G2** detects the position of the motor which it sends to regulators **AR1** that control the position, while an associated circuit **GU1** converts the data into a signal pulse, the signal pulse can be made dependent on a number of pulses per rotation as discussed in the combination with Okada in claim 1).

For claim 11: The combination of Agne and Okada teaches the drive device of claim 10 and Agne further teaches that the output of the first circuit **GU1** communicates with the input of a second circuit **GU2** which converts the first pulse train into a new pulse shaped output signal (in Agne, **GU2** outputs a pulse signal, and **GU1** through **AB4** and **AR4** communicates as an input to **GU2**). As taught by the combination above by Okada, the signal is shaped in conjunction with a parameter based on a number of pulses per rotation and this parameterization clearly affects the shape of the output signal (the signal parameterized by a number of pulses per rotation appears like the signal of Figure 27A).

For claim 12: The combination of Agne and Okada teaches all of the limitations of claim 12 and Agne further teaches that the second circuit (see the Figure, the circuit is roughly approximated by **GU2** has a plurality of subcircuits which are able to generate a number of different pulse trains in the form of output signals at a number of outputs (column 3, lines 32-35, Agne teaches the use of Ethernet, which is formed by a plurality of circuits, and capable of generating a number of different pulse trains to a number of different outputs, hence universal usage of the output data as described).

For claim 13: The combination of Agne and Okada teaches the drive device of claim 11 and Okada teaches that the parameters are adjustable (Okada teaches that the signal output may be one pulse per rotation or multiple, see Figs. 21A and 27A, in 21A, there are two per rotation and in Fig. 27A there is only one per rotation, see also paragraphs 557 and 620).

For claim 14: The combination of Agne and Okada teaches the drive device of claim 1 and Okada teaches that it is possible to parameterize the output signal with regard to a number of pulse per rotation (see paragraph 330, Fig. 27A of Okada; the circuit **GU2** of Agne converts the signal into pulses which can be parameterized with respect to a number of pulses per rotation).

For claim 15: The combination of Agne and Okada teaches the drive device of claim 1 and Okada teaches that it is possible to parameterize the output signal with regard to a number of pulse per rotation of a subassembly (the motor **M1** of Agne to be a subassembly of the entire drive, the number of pulses is already parameterized with respect to the rotation of the subassembly).

For claim 17: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches that the pulse train is in the form of a digital output signal (see column 3, lines 32-35, the use of Ethernet to transmit the signals is a digital output).

For claim 18: The combination of Agne and Okada teaches the drive device of claim 1 and Okada teaches that the pulse train is in the form of an analog output signal (see Okada, paragraph 22, wherein the electronic circuits produce signals for pickup by an analog processor).

For claim 19: The combination of Agne and Okada teaches the drive device of claim 1 wherein the output signal at the output has a set of correlated pulse trains (see the rejection for claim 1, this limitation has been incorporated into claim 1).

For claim 20: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches that the circuit is detachably connected to a computing unit **L** in order to adjust the parameters (the circuit and device itself is shown as connected to, but separate from and thus detachable from, a computing unit **L**, which would be capable of controlling the circuit, see Fig. 1).

For claim 21: The combination of Agne and Okada teaches the drive device of claim 1 and Agne teaches that the position is preset by a drive control unit (the drive control unit is the entire drive controlling apparatus shown in the Figure in Agne and the drive device is set to control the positions of the drive and thus set the position of the axles).

For claim 22: The combination of Agne and Okada teaches the drive device of claim 10 and Agne teaches that the drive control unit is an independent master for the drive that is coupled with the virtual leading axels (the drive control unit is the apparatus shown in the Figure of Agne and is an independent master, since it is shown separate from any other apparatus and coupled to the virtual leading axles **G1, G2** as all of the components are connected by wiring).

For claim 25: Agne teaches a drive device (see the Figure, the entire Figure is a drive device, and column 2, lines 35 and 66) comprising at least two virtual axles **G1, G2** (see column 2, lines 40-45, sensors **G1, G2** are virtual axles in that they sense the position of the motor **M1**) configured to preset the desired angular position of a drive (column 3, lines 1-10, the sensor detects the position of the motor and sends the position to a drive regulator, which can control the drive position) driven by a separate

motor **M1** (in column 2, lines 34-40, the invention is disclosed as "a drive comprising at least one motor **M1 to M5**”), wherein the at least two virtual leading axles **G1, G2** are connected to a circuit **GU2** (column 2, lines 46-49, the signal processor is a circuit) which is configured to convert the data for the angular position of a leading axle position into a pulse train in the form of output signals (see column 2, lines 40-60, the circuit **GU2** converts the position data from **G1, G2** about the motor **M1** into sensor compatible pulsed signals), the circuit **GU2** being assigned to at least one of the virtual leading axles (see column 2, lines 55-60, circuit **GU2** receives the signals of sensors **G1, G2** and thus is assigned to both) and the pulse train includes a set of correlated pulse trains (see column 2, lines 40-60, the position value of the motor **M1** is converted into sensor-compatible pulsed signals in converter **GU2**, a pulsed signals can be considered a set of pulse trains, sequentially speaking, the first three pulses are one pulse train, the next three pulses are a second pulse train, for example), wherein the correlated pulse trains are configured to indicate a direction of movement (see column 3, lines 1-3, the pulses indicate the position data of the drive, and thus over time indicate movement), increase reliability (see column 2, lines 55-60, the pulse trains are used to better control the drive by communication to a drive regulator) and indicate a zero point (given a pulse train, the lack of a pulse is implied zero point). Agne teaches that the pulse train represents a position of an axle and that the pulse train represents the movement of the axle (see column 3, lines 1-3, the pulse train indicates the position, and the position over time indicates movement).

Agne does not teach that the circuit is configured to be parameterized with regard to a number of pulses per rotation. However, Okada teaches a position detector **11** for a motor **2** that outputs a frequency signal that is in proportion to rotation speed (see paragraph 330). This means that the signal is parameterized with respect to the number of pulses per rotation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to parameterize the outputted signal of Agne with regard to a number of pulses per rotation as taught by Okada, so that other devices can interpret the parameterized signal and so that a human observer can roughly determine the position and speed of the motor by the signal alone.

The combination of Agne and Okada above teaches pulse trains that consist of a number of pulses per rotation. Agne teaches controlling the subassembly **AR5** by the apparatus taught above, wherein the subassembly comprises a sensor and controls the drive motor and drive (see column 3, lines 8-10 and 19-20).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agne (US Patent 6,456,222) and Okada (US PG Pub 2003/0099176) as applied to claim 4 above, and further in view of Frank et al. (US Patent 6,736,062).

For claim 16: The combination of Agne and Okada teaches all of the limitations of claim 16 except that the output signal is parameterized with respect to a height of its amplitude. However, Frank et al. teaches the output signal is determined by a pair of encoders and is given by the amplitude of the signals (column 3, lines 5-10 and 40-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to parameterize the signal of Agne with respect to its amplitude as taught by

Frank et al. to determine the position of the axles in order to determine a change in the position instantaneously with a change in the amplitude.

6. Claim 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Agne (US Patent 6,456,222) and Okada (US PG Pub 2003/0099176) as applied to claim 10 above, and further in view of Tokiwa (US PG Pub 2003/0041766).

For claim 23: The combination of Agne and Okada teaches all of the limitations of claim 23 except that the control is a preset of a drive control unit of a folding unit. However, Tokiwa teaches a driving means with position encoders for the drive that output the signal as a pulse (paragraph 53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the drive device taught by the combination of Agne and Okada as a position detector of a folding unit, wherein the sensors measure and the signal processors output signals to control the drive motor for the folding unit, for the purpose of being able to more precisely control the position of the folding unit to impart more precise folds and to reset the folding position in the case of an irregularity.

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agne (US Patent 6,456,222) and Okada (US PG Pub 2003/0099176) as applied to claim 1 above, and further in view of Miotke et al. (US Patent 5,089,759) and Helmstädter (US Patent 5,335,597).

For claim 26: The combination of Agne and Okada teaches all of the limitations of claim 1 except that the correlated pulse trains include a pulse train, its inversion, an offset pulse train, its inversion and a pulse train identifying a zero point. However,

Miotke et al. teaches a pulse signal generator (see claim 17, “pulse generator means" and "pulse signal conditioner means” together) which generates a pulse train, an offset pulse train (see claim 17, “pulse generator means generating first and second phase offset pulse trains upon rotation of the rotor”) and inversions of the pulse train and the offset pulse train (see claim 17, “generating a second set of signals corresponding to inverted first and second pulse trains”) for output such that an electrical controller can control a motor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the circuit in the combination of Agne and Okada to output the pulse train in Agne and Okada with an offset and inversions for both the pulse train and the offset pulse train as taught by Miotke et al. for the purpose of sending the signals to an electrical motor controller to control electric motors based on the data.

The combination of Agne, Okada and Miotke et al. does not teach supply a pulse train identifying a zero point together with the other pulse trains. However, Helmstädter teaches supplying a zero pulse together with another pulse train to identify the zero position (see column 2, lines 1-10). It would have been obvious to one of ordinary skill in the art at the invention was made to supply a zero pulse train together with the other pulse trains as taught by Helmstädter to control any electrical motor or devices that require a zero pulse train input.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID BANH whose telephone number is (571)270-3851. The examiner can normally be reached on M-Th 9:30AM-8PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Judy Nguyen can be reached on (571)272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DHB

/Ren L Yan/
Primary Examiner, Art Unit 2854